CLAIMS

1. A standoff/electrical device comprising:

a standoff device to provide predetermined control of a standoff distance between electrical components mounted together with opposing conductive grid array patterns; and

an electrical function structure to provide a predetermined electrical function to at least one of the electrical components.

2. A standoff/electrical device as claimed in Claim 1, where the standoff device arrangement comprises a plurality of rigid standoff pins having a mating relationship with at least one of the electrical components and a distancing control structure to control the standoff distance, with at least a sub-plurality of the plurality of rigid standoff pins having the electrical function structure to provide the electrical function.

3. A standoff/electrical device as claimed in Claim 2, where at least a portion of at least one pin of the plurality of rigid standoff pins has one of a dumbbell shape and a rolling-pin shape, and where protruding portions of the dumbbell shape and the rolling-pin shape serve to buttress against the electrical components to serve as the distancing control structure to control the standoff distance.

4. A standoff/electrical device as claimed in Claim 1, where the predetermined electrical function is at least one of: an electrical conduction path to provide an electrical conduction path between the electrical components; a resistor function; a capacitor function; and an inductor function.

5. A standoff/electrical device as claimed in Claim 1, where at least one of the electrical components is a printed circuit board (PCB), and where the conductive grid array patterns are at least one of: a bump/ball grid array (BGA); a micro BGA (μBGA), a land grid array; and a pad grid array.

6. A standoff/electrical device as claimed in Claim 1, where the standoff/electrical device is one of: composed substantially entirely of electrical-conductive material; and, constructed to have at least two differing areas composed of: electrical-conductive material; electrical-resistive material; electrical-insulative material; electrical-dielectric material; and electrical-inductor material.

7. A standoff/electrical device as claimed in Claim 1, where the standoff/electrical device is provided integrally as part of one of the electrical components.

8. A standoff/electrical device as claimed in Claim 1, where the standoff/electrical device comprises alignment structure to substantially align the opposing conductive grid-array patterns of the electrical components during mounting together thereof.

9. Mounted components comprising:

at least two electrical components having opposing conductive grid-array patterns for electrical connection thereof; and

a standoff device to provide predetermined control of a standoff distance between electrical components mounted together with opposing conductive grid array patterns; and

an electrical function structure to provide a predetermined electrical function to at least one of the electrical components.

10. Mounted components as claimed in Claim 9, where the standoff device comprises a plurality of rigid standoff pins having a mating relationship with at least one of the electrical components and a distancing control structure to control the standoff distance, with at least a sub-plurality of the plurality of rigid standoff pins having the electrical function structure to provide the electrical function.

11. Mounted components as claimed in Claim 10, where at least a portion of at least one pin of the plurality of rigid standoff pins has one of a dumbbell shape and a rolling-pin shape, and where protruding portions of the dumbbell shape and the rolling-pin shape serve to buttress against the electrical components to serve as the distancing control structure to control the standoff distance.

12. Mounted components as claimed in Claim 9, where the predetermined electrical function is at least one of: an electrical conduction path to provide an electrical conduction path between the electrical components; a resistor function; a capacitor function; and an inductor function.

13. Mounted components as claimed in Claim 9, where at least one of the electrical components is a printed circuit board (PCB), and where the conductive grid array patterns are at least one of: a bump/ball grid array (BGA); a micro BGA (μBGA), a land grid array; and a pad grid array.

14. Mounted components as claimed in Claim 9, where the electrical function structure is one of: composed substantially entirely of electrical-conductive material; and, constructed as at least two differing areas composed of: electrical-conductive material; electrical-resistive material; electrical-insulative material; electrical-dielectric material; and electrical-inductor material.

15. Mounted components as claimed in Claim 9, where the standoff device is provided integrally as part of one of the electrical components.

16. Mounted components as claimed in Claim 9, where the standoff device comprises aligner components to substantially align the opposing conductive grid-array patterns of the electrical components during mounting together thereof.

17. A components-mounting method comprising:

mounting at least two electrical components having opposing conductive grid-array patterns for electrical connection thereof; and

interposing a standoff device to provide predetermined control of a standoff distance between the at least two electrical components mounted together with opposing conductive grid

array patterns, and an electrical function structure to provide a predetermined electrical function to at least one of the electrical components.

18. A method as claimed in Claim 17, where the standoff device comprises a plurality of rigid standoff pins having a mating relationship with at least one of the electrical components and a distancing control structure to control the standoff distance, with at least a sub-plurality of the plurality of rigid standoff pins having the electrical function structure to provide the electrical function

19. A method as claimed in Claim 18, where at least a portion of at least one pin of the plurality of rigid standoff pins has one of a dumbbell shape and a rolling-pin shape, and where protruding portions of the dumbbell shape and the rolling-pin shape serve to buttress against the electrical components to serve as the distancing control structure to control the standoff distance.

20. A method as claimed in Claim 17, where the predetermined electrical function is at least one of: an electrical conduction path to provide an electrical conduction path between the electrical components; a resistor function; a capacitor function; and an inductor function.

21. A method as claimed in Claim 17, where at least one of the electrical components is a printed circuit board (PCB), and where the conductive grid array patterns are at least one of: a bump/ball grid array (BGA); a micro BGA (μBGA), a land grid array; and a pad grid array.

22. A method as claimed in Claim 17, where the standoff device is one of: composed substantially entirely of electrical-conductive material; and, constructed to have at least two differing areas composed of: electrical-conductive material; electrical-resistive material; electrical-insulative material; electrical-dielectric material; and electrical-inductor material.

23. A method as claimed in Claim 17, comprising providing the standoff device integrally as part of one of the electrical components.

24. A method as claimed in Claim 17, comprising providing the standoff device with alignment structure to substantially align the opposing conductive grid-array patterns of the electrical components during mounting together thereof.

25. A standoff/electrical device comprising a standoff member having a predetermined rigid standoff thickness and disposable between electrical components mounted together with opposing conductive grid array patterns so as to maintain a predetermined distance therebetween, the standoff member having an electrical path electrically connectable to at least one of the electrical components.

26. A standoff/electrical device as claimed in Claim 25, where the standoff member comprises a plurality of rigid standoff pins having a mating relationship with at least one of the electrical

components, with at least a sub-plurality of the plurality of rigid standoff pins having the electrical path.

27. A standoff/electrical device as claimed in Claim 26, where at least a portion of at least one pin of the plurality of rigid standoff pins has one of a dumbbell shape and a rolling-pin shape, and where protruding portions of the dumbbell shape and the rolling-pin shape serve to buttress against the electrical components to serve as the predetermined rigid standoff thickness to maintain the predetermined distance.

28. A standoff/electrical device as claimed in Claim 25, where the electrical path is at least one of: a substantially non-resistive electrical path; a resistive electrical path; a capacitive electrical path; and, an inductive electrical path.

29. A standoff/electrical device as claimed in Claim 25, where at least one of the electrical components is a printed circuit board (PCB), and where the conductive grid array patterns are at least one of: a bump/ball grid array (BGA); a micro BGA (μBGA), a land grid array; and a pad grid array.

30. A standoff/electrical device as claimed in Claim 25, where the standoff/electrical device is one of: composed substantially entirely of electrical-conductive material; and, constructed as at least

two differing areas composed of: electrical-conductive material; electrical-resistive material; electrical-insulative material; electrical-dielectric material; and electrical-inductive material.

31. A standoff/electrical device as claimed in Claim 25, where the standoff/electrical device is provided integrally as part of one of the electrical components.

32. A standoff/electrical device as claimed in Claim 25, where the standoff/electrical device comprises an first aligner of predetermined shape engageable with a second aligner on at least one of the electrical components so as to substantially align the opposing conductive grid-array patterns of the electrical components during mounting together thereof.

33. Mounted components comprising:

at least two electrical components having opposing conductive grid-array patterns for electrical connection thereof; and

a standoff/electrical device including a standoff member having a predetermined rigid standoff thickness and disposable between the at least two electrical components mounted together with the opposing conductive grid array patterns so as to maintain a predetermined distance therebetween, the standoff member having an electrical path electrically connectable to at least one of the at least two electrical components.

34. Mounted components as claimed in Claim 33, where the standoff member comprises a plurality of rigid standoff pins having a mating relationship with at least one of the at least two electrical components, with at least a sub-plurality of the plurality of rigid standoff pins having the electrical path.

35. Mounted components as claimed in Claim 34, where at least a portion of at least one pin of the plurality of rigid standoff pins has one of a dumbbell shape and a rolling-pin shape, and where protruding portions of the dumbbell shape and the rolling-pin shape serve to buttress against the at least two electrical components to serve as the predetermined rigid standoff thickness to maintain the predetermined distance.

36. Mounted components as claimed in Claim 33, where the electrical path is at least one of: a substantially non-resistive electrical path; a resistive electrical path; a capacitive electrical path; and, an inductive electrical path.

37. Mounted components as claimed in Claim 33, where at least one of the at least two electrical components is a printed circuit board (PCB), and where the conductive grid array patterns are at least one of: a bump/ball grid array (BGA); a micro BGA (μBGA), a land grid array; and a pad grid array.

38. Mounted components as claimed in Claim 33, where the standoff/electrical device is one of: composed substantially entirely of electrical-conductive material; and, constructed as at least two differing areas composed of: electrical-conductive material; electrical-resistive material; electrical-insulative material; electrical-dielectric material; and electrical-inductive material.

39. Mounted components as claimed in Claim 33, where the standoff/electrical device is provided integrally as part of one of the electrical components.

40. Mounted components as claimed in Claim 33, where the standoff/electrical device comprises a first aligner of predetermined shape engageable with a second aligner on at least one of the at least two electrical components so as to substantially align the opposing conductive grid-array patterns of the at least two electrical components during mounting together thereof.